

**Oroville Facilities Relicensing Efforts
Draft Narrative Reports for PM&E Discussion**

Resource Action: EWG-62

Task Force Recommendation Category: 1

**ENHANCE/RESTORE NATIVE PLANT COMMUNITIES
IN THE LAKE OROVILLE UPLAND AREAS**

Description of Potential Resource Action:

This Resource Action would enhance or restore native plant communities in the Lake Oroville upland areas. This may include active restoration in previously disturbed areas; opening up of forest and shrub canopies to increase species richness; conversion of areas with non-native plantings to native species; and/or promote the use of native species in future project designs. Potential sites for active restoration may include abandoned roads and recreation trails as well as areas previously disturbed from construction or maintenance activities. Potential sites for opening up of canopies could include buffer areas at the wildland/urban interface and/or areas with dense vegetation where fire or mechanical thinning may benefit both the plant community composition and special status species habitats.

The following Resource Actions are either similar to or directly related to the proposed measure:

- EWG 31 – involves planting flood tolerant vegetation and placing structural material in drawdown zone of Lake Oroville for fish habitat
- EWG 68B – involves planting riparian vegetation and/or other native species within drawdown zone of Lake Oroville to increase vegetation/wildlife habitat and improve aesthetic quality along the shoreline
- EWG 74 – involves the control of noxious plant species and replanting with native species

Nexus to Project:

Impacts to native vegetation within the project area around Lake Oroville include past and ongoing construction and maintenance activities, roads, trails, campgrounds, and other recreational activities. These may in some instances affect special status species habitats. Maintenance and other land disturbing activities promote the proliferation of invasive plant species. These species have potential to invade native communities and special status species habitats in adjacent upland and wetland/riparian areas.

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Potential Environmental Benefits:

This Resource Action would enhance native plant communities which in turn benefits wildlife species, including numerous special status plants and wildlife. Control of non-native species and restoration with native plants would further reduce the impact of invasive species to these communities and special status species habitats in the future. Areas where vegetation is dense and a limiting factor to species diversity and special status species habitats would benefit from vegetation thinning. Studies indicate that there is an increase in species richness of forbs and grasses in naturally-occurring canopy openings. These openings also harbor many of the special status plant species found in the Project area. Due to the close proximity to urban areas, biomass reduction in areas close to urban populations may reduce the threat of a catastrophic wildfire in addition to enhancing biodiversity.

Potential Constraints:

Potential constraints associated with this Resource Action include the possible impacts to other resources, including cultural resources. There may also be a limited number of areas that have potential to be restored.

Existing Conditions in the Proposed Resource Action Implementation Area:

Vegetation in the Project vicinity of the Thermalito Diversion Pool and Lake Oroville area consists of open woodland, forest, and chaparral communities. Vegetation associations range from oak and oak/pine woodlands and chaparral at the lower elevations to Ponderosa pine and mixed conifer/hardwood forests in the upper elevations. Overall, 76% of the upland shrub and woodland communities within the Project area currently have dense canopy closures of more than 60% (CDWR 2004a).

The dense canopy closures of woodland and chaparral vegetation decrease species richness and increase the risk of wildfire. Many of the plant species and most communities in this area show evidence of adaptation to recurrent fire. In chaparral and mixed conifer communities, many plant species have life history attributes tied to fire for their reproduction. Chaparral shrubs, in particular, are extremely flammable due to their resinous foliage, accumulated standing dead branches, and leaf litter (CDWR 2004a). Native perennial grasslands may also have been maintained by periodic fires.

These vegetation types are habitat for a number of special status plant species, most of which inhabit openings in woodland habitats. As these communities mature, densities increase and grassy openings decrease. Non-native invasive plant species occur throughout the Project area and have impacted native species and habitats. These species tend to first invade areas of disturbance and move into

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adjacent native habitats. Areas of disturbance occur primarily around project features such as project facilities, roads, and recreational facilities including campgrounds, unimproved recreation areas, and trails.

Design Considerations and Evaluation:

Potential measures to limit impacts to upland plant communities within the Project area from Project-related activities and current and future recreational use and/or development include:

- Avoid siting new recreational/project facilities within areas mapped as sensitive resource area for plants and wildlife (CDWR 2004b)
- Minimize loss to natural communities by siting new facilities in areas that currently have some level of disturbance
- Retain mature trees and shrubs
- Minimize loss to areas with a notable number of native perennial bunchgrasses
- Minimize or eliminate use of non-native species in landscaping – use drought tolerant native plant species
- Revegetate and/or restore native plant habitats within disturbed areas
- Support prescribed burns and/or biomass reduction techniques on wildlands adjacent to and in the vicinity of urban areas

Disturbed areas around project facilities that do not have potential to be used in the future should be identified for restoration. These areas can be identified from aerial photos such as in Figure 1. Once identified, consultation with Oroville Field Division staff as to the potential for each area to be removed from use as part of a Project facility and restored to native vegetation will be conducted. A planting design will be developed using native species appropriate for the site. Other areas to be identified for potential restoration include old trails and unused roads, previous staging areas, and areas with a high degree of invasive plant species. Grassland areas within woodlands may be restored to native bunchgrasses.

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Figure 1. Example of Project facilities with potential areas for revegetation.

A variety of techniques can be used to decrease canopy closures, reduce fuel loads, and increase biodiversity and the health of plant communities. These include prescribed burns and biomass reduction techniques such as mastication, chipping, thinning, and herbicide application. The outcome of any treatment may be influenced by several factors including:

- the degree of physical ground disturbance caused by the treatment (ground disturbance can release propagules of native species, but also tends to favor the establishment of non-native species)
- time interval since previous disturbance/canopy opening
- proximity to sources of weeds
- type of disturbance (fire vs. mechanical removal)

Areas of dense canopy closure of oak/pine woodlands and chaparral can be identified from aerial photos. Biomass reduction techniques could be used to reduce canopy closures. These areas could be treated over a number of years to create a mosaic of vegetative structural diversity and densities. These treatment areas could be concentrated near urban/recreational sites to further help reduce the risk of wildfire.

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The Department of Parks and Recreation (DPR) has created shaded fuel breaks at Loafer Creek around campgrounds and roads. Shaded fuel breaks have also been created along the urban interface at Kelly Ridge. These need to be treated periodically to maintain the open structure of the plant communities. Treatments can use a combination of biomass reduction techniques. Vegetation can be cut and removed by hand (preferred method) and the vegetation chipped or removed to another location. Periodic surface burns will help maintain the open structure of the vegetation. Both the Kelly Ridge and Loafer Creek areas would benefit from both shaded fuel breaks and the creation of a mosaic of open canopies within the denser woodland and chaparral vegetation (Figures 2 and 3).



Figure 2. Kelly Ridge – urban/wildland interface.

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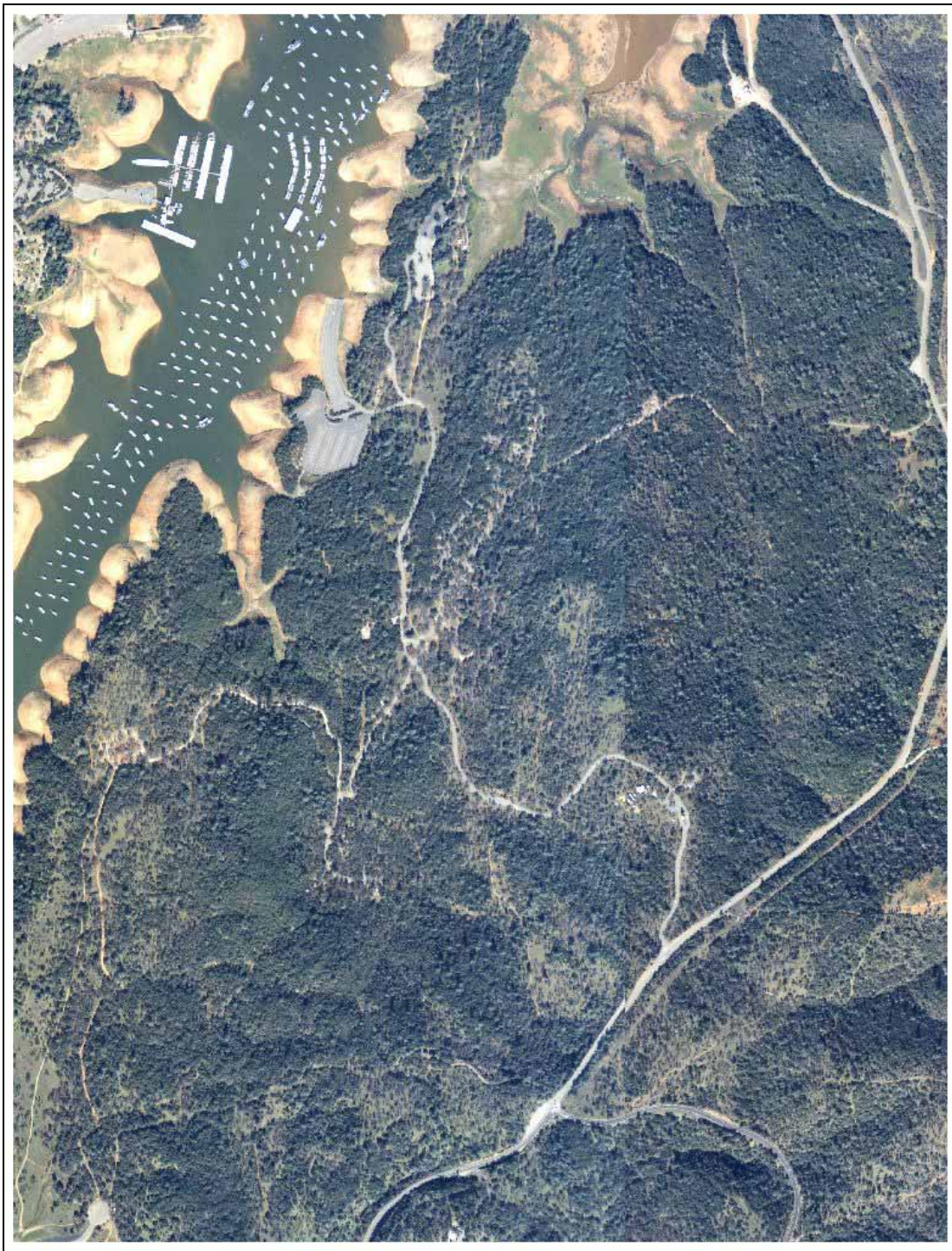


Figure 3. Loafer Creek Campground and Project area.

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Synergism and Conflicts:

A number of other Resource Actions aim to enhance native riparian habitats within the project area as well as to control invasive plant species and restore the areas with native species. Conflicts may arise when recreation activities directly affect upland plant communities; when new project facilities are constructed; maintenance activities are conducted; and roads and trails are developed. Planting of native species for cultural resource development has the potential to benefit upland native communities if collecting is conducted in such a manner as to maintain the vegetation type.

Uncertainties:

A number of uncertainties exist with this Resource Action. The number of areas that can be taken out of use may be limited. Although biomass reduction has been used in the past, no monitoring has been conducted to determine its effect on non-native species invasions and/or the benefits for biodiversity. It is also uncertain how long restored areas will need to be watered and maintained.

Cost Estimate:

The costs of this Resource Action will depend on the type of action and the number of acre to be restored or treated.

Biomass reduction for creating shaded fuel breaks at the Loafer Creek Campground cost approximately \$1000 per acre for cutting and removing vegetation by hand crews. Mechanical chipping of vegetation costs approximately \$250 per acre.

Costs for revegetation of disturbed sites will include planning, site preparation, materials (plants), planting, watering (1-2 years), and monitoring. These costs can run from \$3,000 to \$10,000 per acre depending on the type of vegetation and degree of site preparation needed.

Recommendations:

Restoration of native upland plant communities is recommended in select areas around Lake Oroville. This should include some biomass reduction for both reducing the risk of wildfires near urban areas and for increasing species richness. Disturbed areas that have no potential for use by Project-related activities should be identified and restored to native plant and wildlife habitats. In addition, non-native plantings could be removed and replanted with native species.

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Literature Cited:

CDWR (California Department of Water Resources). 2004a. SP-T10 Effects of Project Features, Operations, and Maintenance on Upland Plant Communities. Draft Final Report. Sacramento, California. August 2004.

CDWR (California Department of Water Resources). 2004b. Draft Final Report SP-T9: Recreation and Wildlife. Sacramento, California. June 2004.